附件: 鸻鹬类滨海高潮位歇息地管理指南

1. 有用参考文献

背景资料

1. 解释什么是歇息以及鸻鹬类如何选择高潮位歇息地的论文：

Rogers, D.I. (2003) High-tide roost choice by coastal waders. Wader Study Group Bulletin, 100, 73–79.

2. 解释因缺乏无干扰的歇息地而导致本地鸻鹬类数目受到限制的论文：

Rogers, D. I., Piersma, T., Hassell, C. J. (2006). Roost availability may constrain shorebird distribution: Exploring the energetic costs of roosting and disturbance around a tropical bay. Biological Conservation, 133, 225–235.

3. 解释为什么干扰对鸻鹬类有害的论文：

Van der Kolk, H., Krijgsveld, K.L., Linssen, H., Diertens, R., Dolman, D., Jans, M., Frauendorf, M., Ens, B.J., van de Pol, M. (2020). Cumulative energetic costs of military aircraft, recreational and natural disturbance in roosting shorebirds. Animal Conservation 23, 359– 372.

Lilleyman, A., Franklin, D.C., Szabo, J.K., Lawes, M.J. (2016) Behavioural responses of migratory shorebirds to disturbance at a high-tide roost. Emu, 116, 111–118.

Yasué, M., Dearden, P., Moore, A. (2008) An approach to assess the potential impacts of human disturbance on wintering tropical shorebirds. Oryx, 42, 415–423.

Kim, H.-C., Yoo, J.-C. (2007) Responses of shorebirds to disturbance at roosting sites. Journal of Ecological Field Biology 30, 69–73.

4. 讨论水鸟在人工高潮位歇息地繁殖的论文:

Lei, W., Wu, Y., Wu, F., Piersma, T., Zhang, Z., Masero, J.A. (2021) Artificial Wetlands as Breeding Habitats for Shorebirds: A Case Study on Pied Avocets in China's Largest Saltpan Complex. Frontiers in Ecology & Evolution 9, 622756.

Wu, F., Lei, W., Lloyd, H., Zhang, Z. (2020) Predictors of Gull-billed tern (Gelochelidon nilotica) nest survival in artificial coastal saltpans, Bohai Bay, China. PeerJ 8, e10054.

5. 解释有些鸻鹬类如何进食潮上带水体里的小型食物的论文：

Estrella, S.M., Masero, J.A. (2007) The use of distal rhynchokinesis by birds feeding in water. The Journal of Experimental Biology, 210, 3757–3762.

6. 探索东亚-澳大利西亚迁飞区内的鸻鹬类使用人工栖息地情况的论文：

Jackson, M. V., Choi, C.-Y., Amano, T., Estrella, S. M., Lei, W., Moores, N., Mundkur, T., Rogers, D. I., Fuller, R. A. (2020) Navigating coasts of concrete: pervasive use of artificial habitats by shorebirds in the Asia-Pacific. Biological Conservation 247, 108591.

方框 1 – 鸻鹬类

7. 概述鸻鹬类的不同生境策略（滨海湿地、广布及内陆）的论文：

Piersma, T. (2003) "Coastal" versus "inland" shorebird species: Interlinked fundamental dichotomies between their life and demographic histories? Wader Study Bulletin, 100, 5–9.

方框 2 – 东亚-澳大利西亚迁飞区的迁徙鸻鹬类

8. 解释「迁飞区」概念的会议简报：

Boere, G.C., Stroud, D.A. (2006) The flyway concept: what it is and what it isn't. In: Boere, G.C., Galbraith, C.A., Stroud, D.A. (Eds.), Waterbirds Around the World. The Stationery Office, Edinburgh, UK, pp. 40–47. WEB LINK

9. 介绍东亚-澳大利西亚迁飞区的迁徙鸻鹬类的报告：

Bamford, M., Watkins, D., Bancroft, W., Tischler, G., Wahl, J. (2008) "Migratory Shorebirds of the East Asian – Australasian Flyway; Population Estimates and Internationally Important Sites". Wetlands International – Oceania: Canberra. WEB LINK

10. 讨论东亚-澳大利西亚迁飞区在保护鸻鹬类方面的管治架构的论文：

Gallo-Cajiao, E., Morrison, T.H., Fidelman, P., Kark, S., Fuller, R.A. (2019) Global environmental governance for conserving migratory shorebirds in the Asia-Pacific. Regional Environmental Change 19, 1113–1129.

11. 记录由全国性数据反映出的鸻鹬类群种数量下降的论文：

Clemens, R.S., Rogers, D.I., Hansen, B.D., Gosbell, K., Minton, C.D.T., Straw, P., Bamford, M., Woehler, E.J., Milton, D.A., Weston, M.A., Venables, B., Weller, D., Hassell, C., Rutherford, B., Onton, K., Herrod, A., Studds, C.E., Choi, C.-Y., Dhanjal-Adams, K.L., Murray, N.J., Skilleter, G.A., Fuller, R.A. (2016) Continentalscale decreases in shorebird populations in Australia. Emu, 116, 119–135

Amano, T., Székely, T., Koyama, K., Amano, H., Sutherland, W.J. (2010) A framework for monitoring the status of populations: An example from wader populations in the East Asian–Australasian flyway. Biological Conservation, 143, 2238–2247.

12. 示意生境丧失导致迁徙鸻鹬类数目下降（特别是在东亚地区）的论文：

Studds, C.E., Kendall, B.E., Murray, N.J., Wilson, H.B., Rogers, D.I., Clemens, R.S., Gosbell, K., Hassell, C.J., Jessop, R., Melville, D.S., Milton, D.A., Minton, C.D., Possingham, H.P., Riegen, A.C., Straw, P., Woehler, E.J., Fuller, R.A. (2017) Rapid population decline in migratory shorebirds relying on Yellow Sea tidal mudflats as stopover sites. Nature Communications, 8, 14895.

Piersma, T., Lok, T., Chen, Y., Hassell, C.J., Yang, H.-Y., Boyle, A., Slaymaker, M., Chan, Y.-C., Melville, D.S., Zhang, Z.-W., Ma, Z. (2016) Simultaneous declines in summer survival of three shorebird species signals a flyway at risk. Journal of Applied Ecology, 53, 479–490.

歇息地的重要生物物理特征

13. 总结世界各地研究鸻鹬类偏好的潮上带池塘特征的文献综述：

Rogers, D.I., Stamation, K., Loyn, R.H., Menkhorst, P. (2015) "Literature Review: Management of Non-Tidal Ponds for Shorebirds". ARI Technical Report 264. Arthur Rylah Institute for Environmental Research: Melbourne.

14. 讨论在特定地方鸻鹬类偏好的歇息地特征的论文：

Yu, C., Ngoprasert, D., Round, P.D., Pierce, A.J., Savini, T., Gale, G.A. (2019) Roost selection of the endangered Spotted Greenshank (Tringa guttifer) in critical habitat in the Inner Gulf of Thailand. Avian Research 10, doi: 10.1186/s40657-019-0148-7

Jackson, M.V., Carrasco, L. R., Choi, C.-Y., Li, J., Ma, Z., Melville, D.S., Mu, T., Peng, H.-B., Woodworth, B.K., Yang, Z., Zhang, L., Fuller, R.A. (2019) Multiple habitat use by declining migratory birds necessitates joined-up conservation. Ecology & Evolution 9, 2505–2515.

He, P., Melville, D. S., Peng, H.-B., Tan, K., Chen, Y., Ma, Z. (2016) Aquaculture pond banks as high-tide roosts: What physical characteristics are more attractive to shorebirds. Stilt 69–70, 62– 65.

鸻鹬类歇息地的管理

15. 详细介绍如何修建鸻鹬类歇息地的报告：

Lawler, W. (1995) Wader roost construction in Moreton Bay – a feasibility study into the construction of migratory wader (shorebird) high tide roosts in Moreton Bay, Qld, using Raby Bay as a case study. Queensland Wader Study Group.

16. 讨论在港口为鸻鹬类提供及管理高潮位歇息地的论文：

Lilleyman, A., Rogers, D. I., Jackson, M.V., Fuller, R.A., O'Brien, G., Garnett, S.T. (2020) An artificial site provides valuable additional habitat to migratory shorebirds in a tropical harbor. Pacific Conservation Biology, doi: 10.1071/PC19036.

17. 讨论如何管理米埔自然保护区的高潮位歇息地的管理计划：

WWF Hong Kong (2019) Mai Po Nature Reserve Management Plan: 2019-2024. WEB LINK

18. 讨论如何管理米埔自然保护区的高潮位歇息地的技术性文件：

WWF Hong Kong (2013) MAI PO NATURE RESERVE HABITAT MANAGEMENT, MONITORING AND RESEARCH PLAN 2013-2018. WEB LINK

19. 使用标识和限制进入来减少对水鸟繁殖点的干扰的文献总结：

Williams, D.R., Child, M.F., Dicks, L.V., Ockendon, N., Pople, R.G., Showler, D.A., Walsh, J.C., zu Ermgassen, E.K.H.J., Sutherland, W.J. (2020) Bird Conservation. Pages 137-281 in: W.J. Sutherland, L.V. Dicks, S.O. Petrovan & R.K. Smith (eds) What Works in Conservation 2020. Open Book Publishers, Cambridge, UK. WEB LINK

20. 讨论人类活动对鸻鹬类产生干扰的特定距离的研究：

Weston, M.A., McLeod, A.M., Blumstein, D.T., Guay, P.-J. (2012) A review of flight-initiation distances and their application to managing disturbance to Australian birds, Emu, 112, 269–286.

Glover, H.K., Weston, M.A., Maguire, G.S. (2011) Towards ecologically meaningful and socially acceptable buffers: response distances of shorebirds in Victoria, Australia, to human disturbance. Landscape and Urban Planning 103, 326–334.

2. 需要进一步研究的领域

在高潮位歇息地的管理方面，还有几个关键的领域需要更多的研究，其中包括：

歇息地的污染物。研究的问题包括：

- 鸻鹬类在歇息地会接触到什么污染物呢？
- 哪些污染物以及其浓度水平是有害的呢？
- 我们该如何决定是否应该阻止鸻鹬类使用某个污染物超标的歇息地呢？

歇息地的疾病传播风险。研究的问题包括：

- 针对鸻鹬类之间的疾病传播，在设计歇息地时是否需要考虑一些好的或差的特定特征？

夜间歇息：在大部分地区，对夜间歇息地的调查开展得很少，所以对歇息规律也所知甚少。在有些地点，可以通过寻找鸻鹬类的足印或换出的羽毛来确认是否是夜间歇息点。无线电、全球定位系统（GPS）和衛星追踪等技术也可以记录所有本地歇息地的使用规律。

小潮时的歇息：在大潮时（即每月最高潮位时），大部分甚至全部的潮间带都会被水淹没，鸻鹬类会集中于潮上带，此时也是一个最容易进行数量调查的时间。在很多时候，鸻鹬类的移动规律就是根据这些调查而得知的。然而，在小潮时，高潮位歇息地对鸻鹬类的歇息和觅食的重要性，以及它们面对的威胁和干扰，一般都没有太多的研究。

歇息地的动态：在很多地方，尚未完全了解觅食地和歇息地之间的互动，因此，很难量化「多大面积的歇息地才足够？」。由于很多鸻鹬类种群的数量已下降超过了 50%，如果它们的数量开始恢复至历史水平，这就会成为一个特别重要的问题。确保可供鸻鹬类使用的歇息地足够，从而不会成为限制鸻鹬类本地种群数目的因素，是很重要的。